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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,479	07/19/2000	Shunpei Yamazaki	0756-2188	1883

7590

09/08/2005

Robinson Intellectual Property Law Office  
PMB 955  
21010 Southbank Stret  
Potomac Falls, VA 20165

EXAMINER
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RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/619,479

Applicant(s)

YAMAZAKI ET AL.

Examiner

Timothy L. Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.  
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22, 29-34 and 38-67 is/are pending in the application.  
 4a) Of the above claim(s) 1-9, 12-20 and 29-34 is/are withdrawn from consideration.  
 5) ☒ Claim(s) 10, 11, 21 and 22 is/are allowed.  
 6) ☒ Claim(s) 38-67 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 27 June 2005 has been entered.

### ***Claims***

1. Claims 38-43 are amended. Claims 62-67 are added.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

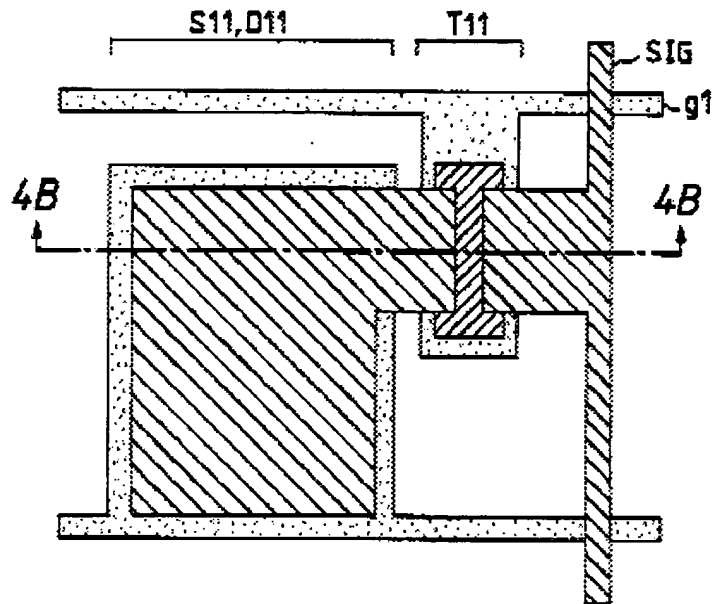
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

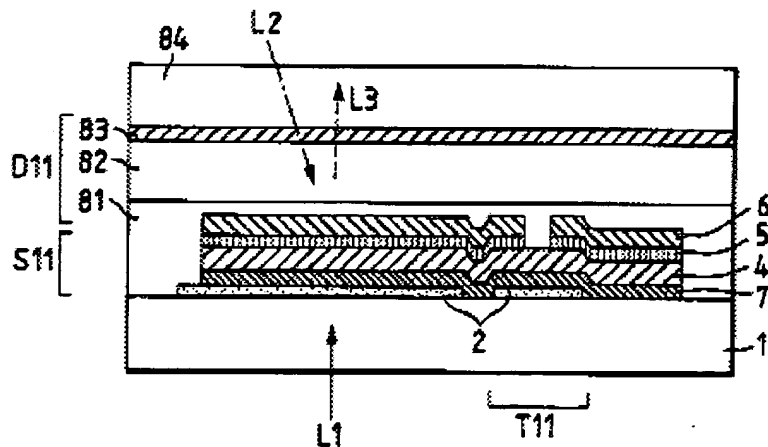
2. Claims 38, 40-44, 50, 52, 54, 56, 58-62, and 64-67 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaifu et al (Kaifu) USPAT 5,812,109.

As to claims 38, 40-44, 50, 52, 54, 56, 58-62, and 64-67, Kaifu discloses an embodiment (col. 14, line 53 through col. 17, line 13) that is explained in part by Figures 3, 4A, and 4B, (col. 5, line 26 through col. 14, line 52) wherein an integral image recognition/display apparatus comprises: a plurality of pixel portions, (everything in Figure 4A), each having an active device, T11, and arranged in matrix and each having a pixel electrode (left portion in Figure 4B), comprising 10,000 angstrom thick layer of aluminum (Applicant's a reflecting material), 6, and n-doped silicon (Applicant's light-transmitting material), 5, (Applicant's pixel electrode comprises a first layer and a second layer, said second layer provided over said first layer, one of said first layer and said second layer comprising a reflecting material (10,000 angstrom thick layer of aluminum) and the other comprising light-transmitting material (n-doped silicon)) over an active matrix substrate, 1; and a plurality of sensor portions, S11, arranged in matrix over said active matrix substrate, wherein said sensor portion includes a photo-electric conversion device, 4, and can read information by utilizing the rays of light transmitting through said light-transmitting material when an external image is read (Abstract), wherein said photo-electric conversion device, 4, overlaps the TFT (Applicant's active device).

**FIG. 4A**



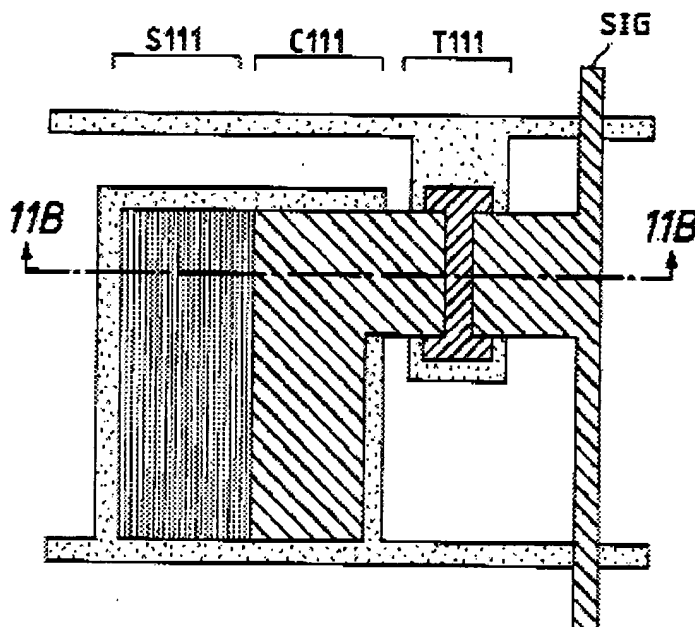
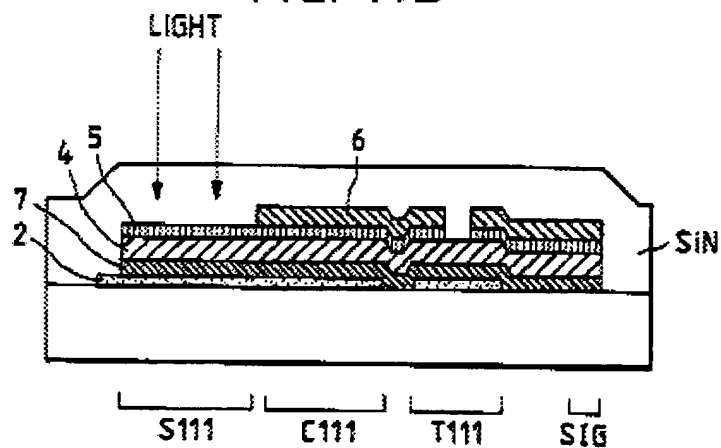
**FIG. 4B**



Note: the removal (col. 7, lines 12-22) of a portion of the aluminum electrode, 6, is not shown in Figures 4A and 4B. However, an illustration may be found in Figures 11A and 11B (Applicant's wherein a plane parallel to a direction of said matrix is divided into at least a first display region and a second display region in said pixel electrode,

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wherein said pixel electrode comprises a reflecting material, 6, in said first display region, and wherein said pixel electrode comprises a light-transmitting material, 5, in said second display region) (col. 14, line 53 through col. 17, line 13),

**FIG. 11A****FIG. 11B**

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wherein said pixel electrode, 6, has an image display function (col. 11, line 66 through col. 12, line 10; see also incident light ray L2 and reflected light ray L3 in Figure 4B) and wherein said sensor portion has a photo-electric conversion device, 4, and at least a part of said photo-electric conversion device, 4, is extended in such a manner as to overlap with said active device, T11. Please note: the difference between the embodiment of Figure 11B and that of Figures 4B is 11B performs the image input and display on the top side as opposed to 4B performing the image input on the bottom side and the image display on the top side. Please also note: in Figure 11B pixel electrode, 6, is energized for image display which also necessarily energizes transparent n-type silicon structure, 5, that functions as a transparent pixel electrode in the display mode.

Please note, Applicant's newly added recitations as to "a source signal line side driving circuit for controlling the pixel portions; a gate signal line side driving circuit for controlling the pixel portions; and a driving circuit for controlling the sensor portions" is considered met by the applied prior art because Kaifu discloses a functional device capable of display and capable of image sensing. Further, Applicant's present claim language does not preclude a line from performing multiple functions (display and image sensing functions) and present claim language does not preclude a driving circuit from performing multiple functions (display and image sensing functions).

Examiner considers the lines and driving circuits of Kaifu to read on the present broad claims as broadly interpreted. If Applicant argues the present claim language to be structurally and patentably distinct from the prior claim language, a restriction requirement may apply.

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Please also note, Applicant's newly added claims 62 and 64-67, drawn to the driving circuit for controlling the sensor portions being a sensor horizontal driving circuit or a sensor vertical driving circuit are considered met because vertical is arbitrary in the disclosure of Kaifu. The display may have any edge at the top, or no edge at the top (display laid flat and facing up or down).

As to claims 44, 50, and 52, Kaifu discloses in Figures 4B, 11A, and 11B, the apparatus according to claims 38, 41, and 42, wherein said active device comprises a bottom gate type TFT, T11.

As to claim 54, Kaifu discloses the invention of a full color device (col. 19, lines 41-47) above wherein the color filter is not on the TFT substrate and therefore must be on the opposed substrate (Applicant's second substrate).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



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3. Claims 39, 45-49, 51, 53, 55, 57, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaifu in view of Itoh et al (Itoh) USPAT 5,585,817.

As to claims 39, 46, 57, and 63, Kaifu discloses in Figures 3, 4A, and 4B, an integral image recognition/display apparatus comprising: a plurality of pixel portions, (everything in Figure 4A), each having an active device, T11 (bottom gate TFT), and arranged in matrix and each having a pixel electrode (left portion in Figure 4B), comprising a reflecting material, 6, and a light-transmitting material, 5, over an active matrix substrate, 1, wherein said pixel electrode, 6, has an image display function (col. 11, line 66 through col. 12, line 10; see also incident light ray L2 and reflected light ray L3 in Figure 4B), wherein said pixel electrode, 6, has an image display function (col. 11, line 66 through col. 12, line 10; see also incident light ray L2 and reflected light ray L3 in Figure 4B).

Please note, Applicant's newly added recitations as to "a source signal line side driving circuit for controlling the pixel portions; a gate signal line side driving circuit for controlling the pixel portions; and a driving circuit for controlling the sensor portions" is considered met by the applied prior art because Kaifu discloses a functional device capable of display and capable of image sensing. Further, Applicant's present claim language does not preclude a line from performing multiple functions (display and image sensing functions) and present claim language does not preclude a driving circuit from performing multiple functions (display and image sensing functions). Examiner considers the lines and driving circuits of Kaifu to read on the present broad

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claims as broadly interpreted. If Applicant argues the present claim language to be structurally and patentably distinct from the prior claim language, a restriction requirement may apply.

Please also note, Applicant's newly added claim 63, drawn to the driving circuit for controlling the sensor portions being a sensor horizontal driving circuit or a sensor vertical driving circuit are considered met because vertical is arbitrary in the disclosure of Kaifu. The display may have any edge at the top, or no edge at the top (display laid flat and facing up or down).

Kaifu does not explicitly disclose a plurality of sensor portions disposed in matrix over an opposed substrate constituting a display panel, wherein said sensor portion has a photo-electric conversion device, and can read information by utilizing the rays of light transmitting through said light-transmitting material when an external image is read.

Itoh teaches in Figure 1 the use of a plurality of sensor portions, 109, disposed in matrix over an opposed substrate, 106, constituting a display panel, wherein said sensor portion has a photo-electric conversion device (col. 4, lines 36-42), and can read information by utilizing the rays of light, 110, transmitting through said light-transmitting material when an external image, 111, is read.

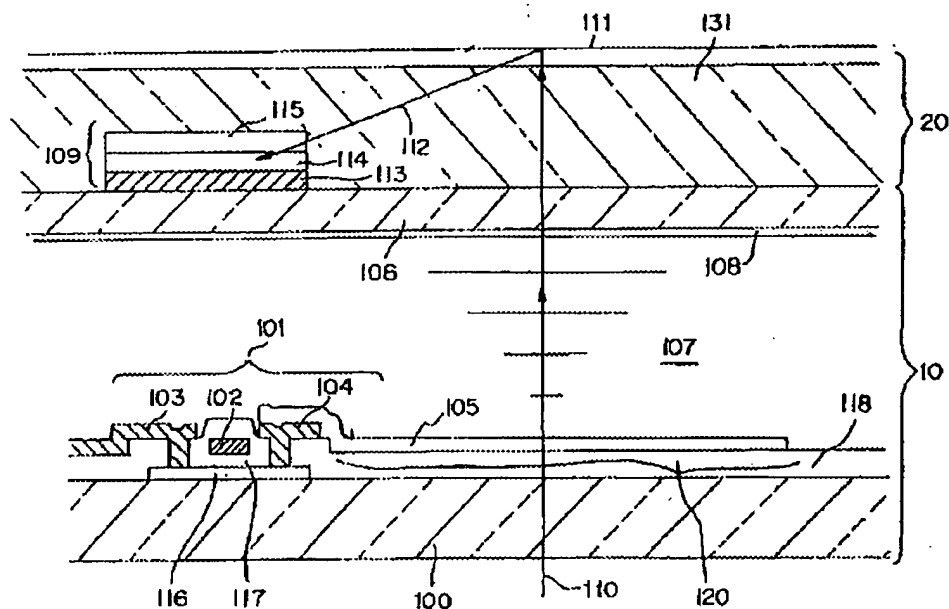


FIG. 1

Itoh is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add photo-electric conversion devices to the opposed substrate to improve contrast (col. 4, lines 56-60).

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the integral image recognition/display apparatus of Kaifu with photo-electric conversion devices on the opposed substrate of Itoh to improve contrast for superior image display.

As to claim 48, Kaifu discloses the invention of a full color device (col. 19, lines 41-47) above wherein the color filter is not on the TFT substrate and therefore must be on the opposed substrate (Applicant's second substrate).

As to claims 45, 47, 49, 51, 53, and 55, Kaifu discloses the apparatus according to claims 38 and 40-43 above and as to claim 47, Kaifu in view of Itoh teach the apparatus according to claim 39 above.

Kaifu does not explicitly disclose the use of a top gate type TFT.

Itoh teaches the use of a top gate TFT, 101, in an integral image recognition/display apparatus in Figure 1 as an art recognized means suitable for the intended purpose of comprising a TFT for improved switching (turning on and off) of the pixel electrodes (MPEP 2144.07) (col. 5, lines 3-11).

Itoh is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add top gate TFTs as an art recognized means suitable for the intended purpose of comprising a TFT for improved switching of the pixel electrodes (col. 5, lines 3-11).

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the integral image recognition/display apparatus of Kaifu with the top gate TFTs of Itoh as an alternate means providing design and manufacturing flexibility for improved switching of the pixel electrodes.

***Allowable Subject Matter***

4. Claims 10, 11, 21, and 22 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 10 and 21, relevant prior art of record did not disclose, alone or in combination, a device as claimed comprising: *“an insulation film provided over said upper electrode; and a pixel electrode provided over said insulation film and connected with one of a source region and a drain region of said transistor; wherein said pixel electrode overlaps with said upper electrode with said insulation film therebetween to provide a capacitance.”* The closest reference is Kaifu, but Kaifu does not disclose a pixel electrode separated from the upper electrode by an insulating film.

As to claims 11 and 22, they are dependant upon claims with allowable subject matter above.

***Response to Arguments***

5. Applicant's arguments filed on 27 June 2005 have been fully considered but they are not persuasive or are moot due to new grounds of rejection.

Applicant's ONLY arguments are as follows:

(1) Kaifu does not disclose an apparatus comprising a source signal line side driving circuit for controlling the pixel portions; a gate signal line side driving circuit for controlling the pixel portions; and a driving circuit for controlling the sensor portions.

(2) Dependent claims are allowable because they directly or indirectly depend from an allowable base claim.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that Applicant's newly added recitations as to "a source signal line side driving circuit for controlling the pixel portions; a gate signal line side driving circuit for controlling the pixel portions; and a driving circuit for controlling the sensor portions" is considered met by the applied prior art because Kaifu discloses a functional device capable of display and capable of image sensing. Further, Applicant's present claim language does not preclude a line from performing multiple functions (display and image sensing functions) and present claim language does not preclude a driving circuit from performing multiple functions (display and image sensing functions). Examiner considers the lines and driving circuits of Kaifu to read on the present broad claims as broadly interpreted. If Applicant argues the present claim language to be structurally and patentably distinct from the prior claim language, a restriction requirement may apply.

(2) It is respectfully pointed out that in so far as Applicant has not argued rejection(s) of the limitations of dependent claim(s), Applicant has acquiesced said rejection(s).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L. Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



tlr

Timothy L Rude  
Examiner  
Art Unit 2883



Frank G. Font  
Supervisory Patent Examiner  
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